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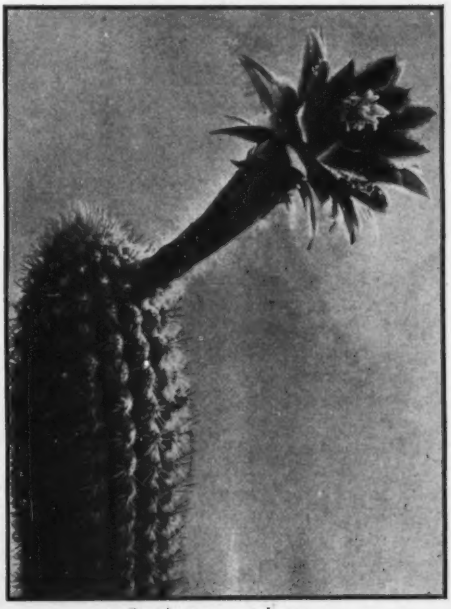

Borzicactus acanthurus

(See page 83)

CACTUS AND SUCCULENT JOURNAL

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VOL. VII DECEMBER, 1935 No. 6

NEW GARDEN SPECIES VI

Echinopsis imperialis Hort.

A. C. S. No. 1-056-442

Originator: E. C. Hummel, 1933.

Seed parent: unknown.

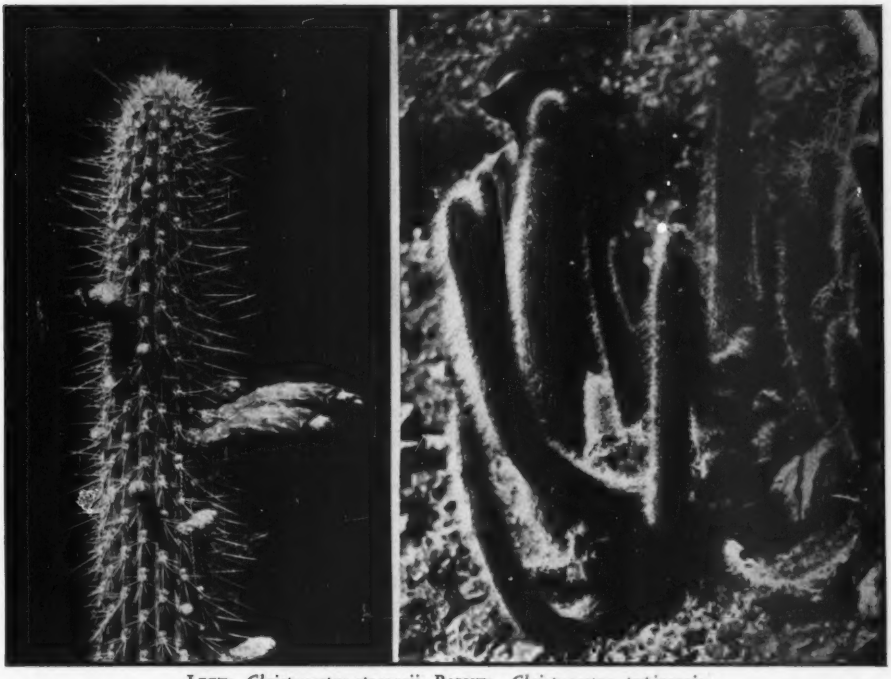
Pollen parent: unknown.

In the June, 1935, issue of this CACTUS AND SUCCULENT JOURNAL, this plant was illustrated on the front cover and briefly referred to in a note on page 178 as "Lobivia cylindrica??" Since that time, careful study has shown this to be an entirely distinct and new plant, and an Echinopsis rather than a Lobivia. The name *Echinopsis imperialis* is truly descriptive of this plant, particularly when in flower. Incidentally Mr. Hummel's address, which is its point of origin happens to be 4848 Imperial Highway. The plant was produced from seed imported under the name *Lobivia cylindrica*, but that species has a yellow flower 7 cm. in diameter, with a stout, cylindric tube. The flower opens flat, the stamens project beyond the tube and the pistil is much shorter than the stamens.

On account of its magnificent flowers, ease of cultivation and distinct individuality, Mr. Hummel's origination is destined to be of great horticultural value as well as being of scientific interest on account of its wide departure from known Echinopsis types. Although its origin is shrouded in mystery and the possibility of its having originated from a garden cross is hinted at in the note above referred to, there is a possibility that it may turn up some day as a natural species, in which case a redescription in that category would be in order. The following description is by Mr. Hummel:

Body clavate, 30 cm. or more in height, 10 cm. in diameter at largest part, 3 to 4 cm. in diameter at base, making offsets sparingly at base; color leaf-green, smooth, somewhat shining, particularly on new growth, texture firm and rigid; ribs 11, nearly straight but having a slight though sharp horizontal furrow beneath each aerole, ribs rounded, 1 cm. high, furrows sharp-angled, becoming flattened in age, but retaining distinctly the mark of the angle; areoles large, elevated, 7 mm. long by 4 mm. across, 15 mm. apart on mature growth, bearing short brownish gray felt; radial spines 8 or 9, centrals 2 or 3, all about 4 mm. long, straight, subulate, rigid, light brown at first, ageing gray; flowers arising from a circle around the crown, nocturnal, opening about 9 p. m., but remaining open from 1 to 3 days thereafter, fragrant; buds have brown hair at first, changing darker, flower buds erect, developing very fast, growing from 15 cm. in length one evening to 23 cm. the following evening; tube light green, 14 cm. long, slender, 12 mm. wide at narrowest point and 3 cm. wide at top, bearing scattered scales which are densely hairy in axils with brown hair; petals projecting 9 cm. beyond tube and making total length of flower 23 cm., diameter of flower 23 cm. across outer perianth segments, 16.4 cm. across inner segments; outer segments greenish brown, lanceolate, 7.6 cm. long, 8 mm. wide, the lower ones drooping; inner perianth segments pure white, in two series, 9 cm. long and 2.5 cm. wide; throat wide, green; stamens in two series, one extending to opening of throat, the other deep inside; filaments green; anthers pale yellow; pistil extending to throat opening; style heavy, green; stigma lobes 13, 1.5 cm. long; fruit not seen.

EDITOR'S NOTE: This department is conducted by Dr. R. W. Poindexter, 4160 Country Club Dr., Long Beach, Calif. Address all identification enquiries direct to this address.



LEFT: *Cleistocactus straussii.* RIGHT: *Cleistocactus tupizensis*

What is a Borzicactus?

By CURT BACKEBERG
Translated by DR. R. W. POINDEXTER

In almost every collection one finds *"Borzicactus" straussii,* which belongs to the most popular of the columnar cacti. It is also known as *Cereus straussii* or *Pilocereus straussii.*

Strange it is that until today no one hit upon the idea of investigating the family relationship of this Cereus in detail. Why is it? The answer is easy. Up to this time no one had seen a true *Borzicactus* flower in cultivation.

The original description of the genus comes from Riccobono, who in 1909 described *Borzicactus ventimigliae,* a synonym for *Borzicactus sepium* (H B K) B. & R., as the latter state. *Cereus sepium, C. icosagonus* and *C. humboldii* (*Binghamia—Cereus plagiostoma* Vpl.) already had been placed in *Cleistocactus* by Weber (1904).

In my new version of the system of Britton and Rose (see my Bulletin for Cactus Research, March, 1934) I have set up a sub-tribe LOXANTHOCEREI. This comprises all South American Cerei with more or less oblique flowers. I have also placed here the genera *Matucana* and *Arequipa,* because these likewise become columnar in age and their flowers, like all of the LOXANTHOCEREI, are red (or reddish, in one case greenish-rose, *Oreocereus fossulatus.*) Looking upon this subtribe, one recognizes a strong connection between various South American Cerei, which must be taken out of the subtribe TRICHOCEREI Berg.

In this subtribe appear *Borzicactus* and *Cleistocactus.*

The similarity between the flowers of *Borzicactus* and *Cleistocactus* caused Weber to designate the true *Borzicactus* as *Cleistocactus,* that is, to him they were all *Cleistocactus* species, for of course he did not recognize the genus *Borzicactus.*

When the longhaired, or at times soft bristled *Cereus straussii* appeared, it was designated as a *Cereus,* because in Germany only that collective genus was utilized. Later they named the plant *"Pilocereus,"* a genus which was formerly used

as a dumping ground for all hairy and bristly "true cereeae" and to which this plant was by its aspect fully accredited.

The danger of sticking by the old collective genus is clearly shown in this instance. So long as there was no requirement that it be placed in a definite genus, the various authors neglected their duty of properly investigating its true generic relationships. Thus *Cereus straussii* sailed calmly on, through books and catalogs, as a *Borzicactus* or merely as a *Cereus* of indefinite relationship.

And no one appeared until today to be surprised that all Britton and Rose's *Borzicactus* occurred in Peru; only one species, *Cereus straussii* (which Rose somehow erroneously put under *Oreocereus celsianus* and in the appendix correctly put as *"Pilocereus"*) occurred in Bolivia. Intervening was an enormous territory, in which no *Borzicactus* has been found. That should indeed have been something to think about.

Let us first examine the genus *Pilocereus*. You distinguish it from *Cephalocereus* in this way: *Cephalocereus* always develops from the apex a true cephalium, in which the fruit is formed and from which it is later pushed out; according to Prof. Werdermann, in some the development now and then is interrupted. *Pilocereus* develops only hair from the areoles, often, it is true, very thick (e.g. *Pilocereus houlletii*) sometimes, however, none at all (e.g. *Pilocereus pentaedrophorus*). Further the fruit is supposed to be flat and the flower-remains persist, but this, however, is not always the case, for *Pilocereus russelianus* and *P. albispinus* have oblong fruit without persistent flower-remains. The form of the flower is lacking from the key of Prof. Werdermann in "Brasilien und Seine Saulenkakteen." I know only, that *Pilocereus lanuginosus*, for example, has tulip-like flowers, while *Pilocereus pentedrophorus* has flowers with somewhat slenderer tubes. In any case the form of the fruit is such an important characteristic that one should add it unconditionally to the generic description.

According to these characteristics alone *Cereus straussii*, of course, cannot possibly be a *Pilocereus*. Besides, there are no *Pilocereus* on the Argentine-Bolivian boundary. This fact may perhaps surprise many, but by studying my system one will recognize that *Pilocereus* belongs to the "northern group;" now is found only on the western border of the former vast Brazilian territory (e.g. *Cephalocereus guentheri* in Pilcomayotal, on the Chaco outlet). The *Espostoa* as well as *Pseudoespostoa* and *Pilocereus tweedyanus* are found in northern Peru, whence, in times gone by, they came down through the great pass in the Andes (which was then probably even lower) from the nearby Brazilian region.

The region of distribution of *Cereus straussii* is, however, the home of *Cleistocactus*.

And *Cereus straussii* is a *Cleistocactus!*

When I first saw *Cleistocactus tupizensis* in the region of Tupiza in Bolivia, I thought I had found a fiery red Straussii. Growth, spines—all were exactly like *Cereus straussii*, only that in the case of these plants the central spine was brilliant red and longer than in *Cereus straussii* in its compact, yellow spined north Argentinan form.

And the flowers are also alike; long, thin, with exserted pistil—true *Cleistocactus* blossoms. Apparently construed as a *Borzicactus* up to this time merely on account of the white bristly spines, *because these made it "Pilocereus like."*

There are in all the following species and varieties:

1. *Cleistocactus tupizensis*, white spined to brownish to fire red, with somewhat stouter spines than *C. straussii* (Tupiza).
2. *Cleistocactus straussii* (type), whitish bristles with thin, acicular yellowish central spine; Argentine-Bolivian boundary, north Argentina near Golgotha; "Cola del Zoro," meaning "fox-tail," is the native name.

   Var. *jujuyensis* Bckbg., brown to red-brown central spine (Jujuy); var. *rosariensis* Bckbg., very sparsely spined, thin like a poorly spined *straussii* (Rosario de Lerma). With lean conditions seedlings grow as above described especially in the autumn. With forcing and repeated cutting back they become gradually whiter, yet the varieties of *Cereus straussii* always have dark areoles, while the type has pure white areoles.

With that, the classification of *C. straussii* was finally cleared up. In its vicinity, as far north as Central Bolivia, grow also the very quickly growing *Cleistocactus buchtieni* Bckbg. and *Cleistocactus herzogianus* Bckbg. and the remaining *Cleistocactus* from Paraguay to north Argentina and Central Bolivia.

Well then, what is a *Borzicactus?*

I show here the photograph of a flower of *Borzicactus acanthurus*. It arises from the young areoles as a bud at first delicately whitehaired. The bud grows slowly and gradually appears from a protruding tuft of white hair. The petals are closed rostrately and show, therefore, in advance the later oblique flower form. The tube is really short, only appearing long in the gradually expanding flower. It does not bear many scales, in contrast to the thickly scaly *Cleistocactus* flower, and is moderately hairy as are also the cherry to walnut-sized fruits.

The filaments lie close together around the pistil. The flower opens funnelshaped and resembles the naked *Matucana* flower. The flowers grow to 10 cm. long. If one compares the accompanying picture of *Borzicactus acanthurus* with one of a richly blooming *Cleistocactus straussii,* (a characteristic of *Cleistocactus—Borzicactus* blooms far less profusely) the difference is seen immediately.

According to the foregoing, the genus *Borzicactus* in Britton and Rose is to be corrected as follows:

No. 1. *Borzicactus sepium*
No. 2. *Borzicactus morleyanus*
No. 3. *Borzicactus icosagonus*
No. 4. *Borzicactus acanthurus*

All these are true *Borzicactus* species, in any case *B. morleyanus;* the last two if they bloom like *B. acanthurus.*

No. 5. *Borzicactus decumbens*

is a white night-bloomer and therefore a *Haageocereus.* The sketch by Rose of blossom found by Soehrens near Tacna is evidently "tailored to fit" for the genus.

No. 6. *Borzicactus humboldtii*
No. 7. *Borzicactus plagiostoma*

Are one and the same plant (See Bulletin for Cactus Research, October, 1934). They are not *Borzicactus* species, but exactly like *Binghamias,* in the sense of the Rosean generic description.

No. 8. *Borzicactus aurivillus*

Binghamias form on the blossoming side of the areoles a sparse bristly tuft. The Rosean genus is therefore good, only the species set up does not agree, for *"Binghamia" melanostele* is a *Haagerocereus* and a white night-bloomer (*Haageocereus pseudomelanostele* [Werd. & Bckbg.] Bckbg.) The name was mistakenly borrowed by Rose from Vaupel's white wooly *Cereus* (*Pseudo-espostoa* Bkbg. new genus) *melanostele.*

Further new, true *Borzicactus* are:

Borzicactus eriotrichus (Werd & Bckbg.) Bckg. with white wooly hair at the tip and larger, more bluish-red flower than *Borzicactus acanthurus.*

Borzicactus faustianus Bckbg., with vermillion flower and thick, dark golden-brown spines. Both of these species, as well as *Borzicactus acanthurus,* grow in the Rimac valley, Central Peru. The characteristic of the central Peruvian species is that they form carpets or low clusters and start to flower when only 25 cm. high.

The study of the foregoing shows how difficult is the review of the South American Cerei.

We find similar difficulty with the Lobivias, for example the *Pentlandii* group, as well as the Parodias and Rebutias.

Even what appears clear as daylight must be proved. For example, one thinks that the single species of the genus *Oroya* is completely clear. Nothing doing. The original *Oroya* appears quite different from that which Rose collected at Oroya and that which Ritter and I brought from there. There are at least three varieties with distinct characteristics, plants which in their habit show no resemblance with the old *Echinocactus peruvianus.* The flowers, to be sure, as I have seen them in cultivation, are the same.

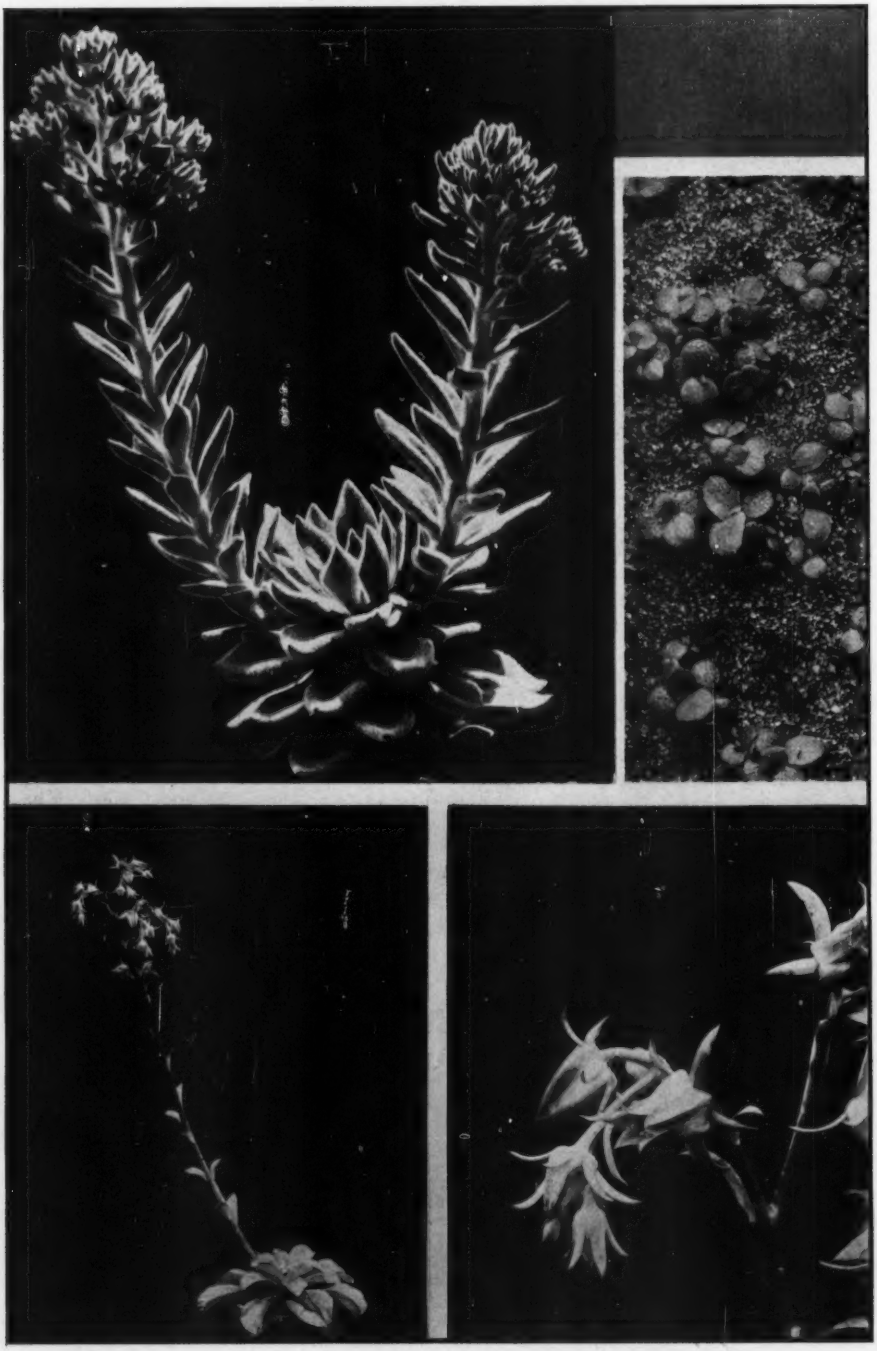
Since I alone visited the entire Cordillera territory not once but twice, I had opportunity, not only to find a series of new species, but also to learn that it is only possible with considerable territorial experience, to bring order in the cacti of this region. This knowledge was one of the causes for bringing out my "Bulletin for Cactus Research," in which I put down the location as well as the exact observations of the genera and species. It may as well be said plainly: A botanist with purely theoretical knowledge on account of his lack of the necessary information about remote territories, will never bring order out of the chaos by gradually accumulating a gigantic mass of new material and new species from little known territories. That lies in the nature of the cactus family. As long as chaos remains, the amateur is the sufferer. Perhaps there are many who have no conception of how great is the new material still to be worked up. If they knew it, the necessity for a prompt and uniform treatment would be better appreciated.

EDITOR'S NOTE: We are indebted to R. W. Kelly for this excellent article which he obtained from Mr. Curt Backeberg some time ago. Mr. Kelly is the local distributor of Mr. Backeberg's seeds. The latest field work is recorded in Mr. Backeberg's monthly bulletin which may be obtained from E. M. Baxter, Bellflower, Calif. Readers will be interested to refer to the Cactus and Succulent Journal Vol. II, page 334 for a large photo by Count F. M. Knuth of Borzicactus straussii, also on page 397 Vol. II are some interesting notes by N. L. Britton.

Dr. Meredith Morgan of Richmond, California, has renewed our interest in crests by sending pictures from his collection. More pictures are needed, both for publishing in the JOURNAL and for a book now being compiled in Holland. The Editor will appreciate good clear pictures. The Oklahoma Cactus and Succulent Society has sent pictures of their prize winning crests which will all appear in a later issue.

Aztekium ritteri, hitherto known only from an inaccessible location in Central Mexico, has been forwarded to Harlan Whitmore, Pres. of the San Fernando Cactus and Succulent Society, from Guatemala, Central America; this is a new location for this little known species of cactus. H. W. K.

E. P. Bradbury, one of our oldest members, still likes the JOURNAL after all of these years! He says, "I find the magazine very interesting and want to compliment you on the way that it is conducted."



UPPER LEFT: *Echeveria pilosa* J. A. Purpus. UPPER RIGHT: Seedlands of *E. retusa-hybrida* pollinated by *E. harmsii*. (ap. x 2). LOWER LEFT: Second-generation hybrid combining characters of four parent-species. (*E. harmsii, crenulata, setosa* and *retusa-hybrida*). Single flowering branch of same LOWER RIGHT.

A Problem in Echeveria

By VICTOR REITER, JR., *Photos by* ERIC WALTHER

With the exception of *Echeveria* (Oliveranthus) *elegans* [1] and possibly Echeveria "retusa hybrida" [2] the genus *Echeveria* has shown little true florist merit except in the strictly "succulent" sense. Beautiful flowering specimens of the various *Echeveria* species are grown from time to time, but not in commercial florist volume.

It was amusing to see an exception recently in a greenhouse filled with *E. carnicolor* seedlings which, no doubt, were grown from seed recommended in a recent German catalogue. The fact that this rather piffling species should be praised shows convincingly how scarce florist material really is in the CRASSULACEAE.

The commercial grower is forever seeking out plants that can be flowered for the holidays when bloom is scarce and buyers many. If florists could get *Rochea* "Brilliancy" or even *Echeveria* (Oliveranthus) *elegans* [1] in flower for Christmas, their searching would be at an end, but unfortunately these plants stick doggedly to their natural flowering season after Easter. The popularity of *Kalanchoe blossfeldiana* (globiferum coccineum) attests the need of winter flowering succulents. Briefly stated, there are no really satisfactory Crassulaceous plants to flower for the holidays excepting the doubtful *Echeveria* "retusa hybrida" [2] and the too late *Kalanchoe blossfeldiana.*

Having seen the various species of *Echeveria* pass in review before the botanical scrutiny of Mr. Eric Walther, it occurred to me that this genus with its twelve months of different blooming seasons, its various types of inflorescence and its distinct foliage forms would make an interesting field for plant breeding with the greenhouse grower in mind.

Weighing the relative value of the different species cultivated at La Rochette the following were selected as desirable breeding material[3]:

Echeveria "retusa hybrida" [2] (blooming season).

Echeveria pulvinata (foliage).

Echeveria setosa (modified habit).

Echeveria (Oliveranthus) *elegans*[1] (size and color of flowers).

Echeveria pilosa (simultaneous numerous flowers).

(*E. crenulata* has been used because of its seed setting qualities in complex hybrids).

With this list as a basis and with much juggling, the various species were crossed one with the other giving us a good collection of first generation seedlings which bloomed in due course. These showed intermediate parental characteristics excepting hairiness which appeared only in crosses made between two hairy species.

We hoped with these first generation hybrids to self cross them and get the desirable hidden characteristics to appear in the next generation, but sterility proved a serious stumbling block. Seed simply failed to set except in a few *Echeveria* "retusa hybrida"[2] x *E. elegans*[1] crosses and in several exceptionally potent complex hybrids in which I put great store. At present all our new seedlings are smooth, but lacking in the pigmentation characteristic of the smooth leaved varieties. Flowers have not yet been produced.

Possibly potency will develop in more of our first generation seedlings as they grow older making it possible for us to pick the work up again at a future date, but for the present we must be satisfied with our smooth leaved seedlings. These we hope will set seed easily and it may be our good fortune to have the pollen of our sterile seedlings prove potent on these second generation plants.

If the wall of sterility which hinders our breeding progress can be broken down great expectations can be entertained for a new race of glorious Echeverias, but to attain that end, seed must be produced.

United States Department of Agriculture has issued a new bulletin "Information concerning the entry of plant material under quarantine No. 37." This bulletin number is B. E. P. Q. 384.

That the writer appreciates the Journal is shown by her following statement:

"The plans for the Journal for the coming year sound very interesting. I have found Mrs. Lanier's article of particular interest. Mr. Walther's, too, have proved valuable, specially his Mexican articles on Echeverias in their native habitat. It is unfair, however, to pick out special articles because I read the Journal eagerly from cover to cover including the advertisements!" RUTH SAGE.

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1. *Echeveria harmsii* F. McBride, for full synonymy, see CACTUS AND SUCCULENT JOURNAL for October 1935, page 60.
2. *Echeveria fulgens* Lemaire, largely.
3. *Echeveria derenbergii* was also considered because of its beautiful upright flowers and earliness, but little has been done with it. The chance of incorporating *Graptopetalum* species to give starry flowers is very doubtful although F1 seedlings have been produced.

Neomammillaria dawsonii, Sp. Nov.

By Arthur D. Houghton

Planta solitaria, globosa, 3-5 cm. diametro, humillime nascens, partibus aspectabilibus circiter 1½-2 cm. super humum, plerumpue sub fruticibus in profunda umbra nascens; una radix brevis crassima, carinosa in minores radices circiter 4-5 cm. sub terra fastigat; tubercula coni forma, 6mm. alta, parvae, orbiculatae; *spinae radiales 6-8 libratae, circiter 3 mm. longae, rigida, rectae; spina media una paulo brevior angusti forma, ab fere media planta nascentes, citciter 12 mm. longi, ad 2 mm. diametroin interiore parte festigantes;* segmentis interiribus languide croceis; segmentis externisque paulo rubris; staminibus stigmatibusque 15 mm. longus, 5 mm. diametro, minime subpuniceus *supra, albus infra, gustatu acido; semen diametro minus guam 1 mm. languide rubrum.*

Plants solitary, lactiferous, globular, 3-5 cm. in diameter, very low growing, the visible portion about 1½-2 cm. above ground, usually growing under bushes in deep shade; one or sometimes two short, very thick, fleshy tap roots end in smaller rootlets about 4-5 cm. below the surface; tubercles conic 6 mm. high, 4 mm. in diameter, milky; axils slightly wooly not setose; areoles small, round; radial spines 6-8, horizontal, about 3 mm. long, stiff and straight; central spines one, a little shorter than radials, stiff and straight, ascending; flowers funiculate, from near center of plant, about 12 mm. long, narrowing to 2 mm. in diameter at lower end; inner perianth segments dull yellow; outer perianth segments reddish; stamens and stigma yellow; fruit clavate, 15 mm. long, 5 mm. in diameter, very light pink above, white below, acid tasting; seeds less than 1 mm. in diameter, dull red.

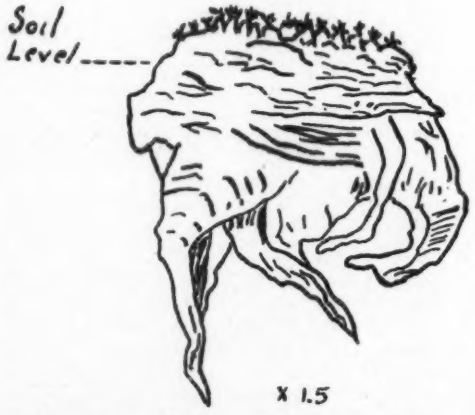
Type locality: Ocean front southwest of Punta Prieta, elevation 10', Lat. 28 degrees 40 minutes North, Long. 114 degrees 12 minutes West.

The type deposited in the herbarium of the University of California at Berkeley, California.

It was by accident that this species was discovered in June, 1933, while Mr. Yale Dawson was collecting specimens of *Neomammillaria blossfeldiana* on the ocean front west by southwest of Punta Prieta. While digging one of the latter, he noticed a little group of tubercles protruding from the clay soil. He at once began to clear away the soil from around it. This first plant was found in nearly full sun on the south side of the north bank of a tiny wash. With the help of his father he searched carefully a 500 ft. circle centering around the spot where the first plant was found. A second plant was encountered under a small Jatropha bush about ten feet from the first, and four more under a large bush just a few feet away. They spent several hours pulling weeds and bushes over quite an extensive area, but no more plants could be found. They had six plants altogether, two of which were in bloom. This locality was again searched the following year, but little time was spent because of an approaching storm. No more plants were found then or in June, 1935, when Howard Gates attempted to find them. Two of the six plants were unable to withstand the trip home, and the other four, although given the best of soil and care, died off one at a time over a period of two year.

This species seems to be somewhat similar to *N. peninsularis*, but the two differ in size, type of roots, spine formation, flowers, and distribution.

San Fernando, Calif.
Nov. 1, 1935.



Neomammillaria dawsonii Houghton, sp, nov.
Specimen with double tap root.

IMPORTANT NOTICE

All memberships and copy for the Journal should be mailed to the Editor, 6162 N. Figueroa St., Los Angeles. The leniency of contributors is solicited for any delays for their articles not appearing immediately in this magazine. Our one regret is that we do not have 64 pages for each issue instead of 24.

The following 8 pages are the 11th installment of the Britton and Rose reprint of Vol. II The Cactaceae through the courtesy of Carnegie Institute.

The Study of Succulents

An Educational Series

III. CLASSIFICATION

Mankind found it necessary to name the various objects presented to his senses, and, for convenience, soon found it necessary to divide things into convenient groups; so three great divisions were established which were called Kingdoms: *those showing no sign of life were called the* Mineral Kingdom; those forms showing life and growth were divided into the Vegetable and Animal Kingdoms.

The definition of Life has been attempted by scholars and scientists of all degrees, but in order *that you may form a concept of what I mean* when I use this term, I tentatively give you my own: Life is an unfinished chemical reaction, a state of unstable equilibrium taking place in a colloid, in the presence of an acid, an alkali and a catalyst (or enzyme) and characterized by metabolism or nourishment, catabolism or excretion, *selective affinity, irritability,* reproduction and either total immortality (as in bacteria and yeasts) or partial immortality, as in higher plants and animals where persistence of life is continuous only in the specialized cells of the *germinal tract.*

In the Vegetable Kingdom, bacteria, as small as 1/100000 of an inch up to giant forest trees, are placed; while the Animal Kingdom embraces everything from the minute, formless amoeba to such great mammals as man and the elephant. In the lowliest forms of life it is sometimes difficult to decide whether a certain species is animal or vegetable.

The chief difference which divides these Kingdoms being that plants usually contain a green coloring matter called chlorophyl, and utilize their oxygen by means of the element manganese; while in animals a similar duty is performed by a substance called haemoglobin, and its activator is iron. Motion and even locomotion is not at all confined to the Animal Kingdom, as many of the lower plants exhibit both; while even in the giant cycads or Sago Palms at flowering time the pollen travels on a film of water like little eels.

We will not further interest ourselves in the Mineral and Animal Kingdoms, but pursue the idea of Classification strictly within the Vegetable Kingdom and with special reference to that interesting family of Succulent plants.

The first great division into which the Vegetable Kingdom is divided, is into non-flowering plants called Cryptogams, and the flowering plants which are called Phanerogams. With the Cryptogams (ferns, mosses, fungi, etc.) we are not concerned.

The Phanerogams are again divided into two divisions: Monocotyledons have only one seed *leaf; the vascular bundles in the stems are arranged* irregularly not forming a definite ring) and the leaves have parallel veins, this division contains many succulent plants, but no cacti. The other division of flowering plants comprises the Dicotyledons which have two seed leaves, the *stem vessels or vascular bundles are arranged in a definite ring* and the veins of the leaves are like a net. In this division are to be found the cacti.

The flowering plants as a whole are divided into upwards of 300 Families. Some of these Families contain succulent plants, which are dicotyledonous and each Family has characters or organs as definite as the difference between a giraffe and a duck; indeed the Families are so widely separated from one another that no case is known where a member of one Family has *ever been grafted or crossed with any member* of another Family

The Family, the CACTACEAE, in which we are now interesting ourselves, can be told from all the others by the following easily remembered points: to belong to this Family (1) the plant must have two seed leaves (cotyledons); (2) the fruit must be a one-celled berry with no divisions between the seeds; (3) the ovary of the flower must be below the insertion of the perianth segments (petals and sepals); (4) the plant must have areoles, commonly called spine-cushions, whether the plant has spines or not; (5) it must be a perennial plant; (6) it must be caulocarpic, that is, it does not die after flowering; (7) it must have numerous stamens; if it lacks any of these points it is not a Cactus

As the number of species and varieties in this Family runs into the thousands, it has been found convenient for the purpose of determination (that is, discovering the name of any certain plant) to do what Caesar did to all Gaul—he divided it into three parts.

The three parts into which the CACTACEAE is divided are called Tribes. The three Tribes are named:

(1) PERESKIEAE
(2) OPUNTIEAE
(3) CEREEAE

These Tribes are again divided by well defined characteristics into Subtribes and again these Subtribes are divided into Genera (the word genera being the plural of the word genus; in other words, you speak of one genus or several genera). These genera are so distinct that when one obtains a hybrid between plants a different genera the achievement calls for a gold medal from the Royal Horticultural Society of England; such hybrids are called bigenerics and are very rare.

Each genera is again divided into Species. A species may contain varieties crossed between varieties; these are more common. The nearer we get to the varieties the closer the relationship between the plants. Varieties may be natural or horticultural; the latter case being originated by men.

There is still a further botanical subdivision called forma, or forms. For instance, a tree which in the lowlands grows to thirty or forty feet in height or even more, may have a mountain form which grows only a few inches in height, but when the latter is transplanted into more favorable conditions it reverts to its tall type; among these may be placed the cristate forms which may be spirally twisted or densely bunched branches—a form which is commonly called "Witches Broom" frequently seen upon Opuntias.

Thus the division of plants may be outlined as follows:

Kingdom—(Plant)
Phanerogam—(Flowering)
Monocotyledon—(One seed-leaf, parallel veins)
Dicotyledon—(Two seed leaves, netted veins)
Family—(as CACTACEAE)
Tribe—(as CEREEAE)
Sub-tribe—(as HYLOCEREANAE)
Genus—(as *Hylocereus*)
Species—(as *Hylocereus speciosus*)
Variety—(by crossing two species)
Form—(as a crest)

EDITOR'S NOTE: The student may refer to any one of a number of elementary books on botany. Mr. E. C. Hummel suggests "Elements of Botany" by Bergen for the beginner. Gray's "Lessons in Botany" is also a standard and is most interesting. Only by real study can a general understanding be gained and we cannot advise too strongly that reference reading is absolutely necessary if you would gain the full enjoyment from this series. The earnest student will want even a better foundation and will study Geology ("Introduction to Physical Geology," W. J. Miller) and Biology ("Fundamentals of Biology," Haupt) in order to prepare a foundation for the actual study of botany. Soon we will start the Illustrated Glossary and the preliminary reading should be completed by that time.

The Editor does not hope to make, out of his readers, botanists or scientists who will understand such definitions as the following, which is Dr. A. D. Houghton's definition of Evolution:

"Evolution is an integration of matter and concomitant dissipation of motion; during which the matter passes from an indefinite incoherent homogeneity to a definite coherent heterogeneity; and during which the retained motion undergoes a parallel transformation." But it is hoped that we may gain enough basic facts so that we will be able to make our own descriptions.

As soon as the glossary (which constitutes the tools for our work) is completed we will start with the common succulents and discuss the characteristics and difference in the various species.

CACTUS SPORT IN CZECHOSLOVAKIA

By LADISLAUS CUTAK

In charge of Succulents, Missouri Botanical Garden

It is an undeniable fact, that among the Germans we will find some of the foremost culturists of cactus plants. This is due partly to the great enthusiasm which the Teutons display in plants of this type and again it is the Germans, who by their methodical work made it possible for the better understanding of these odd and fantastic plants.

But let us also take a peek at the Republic of Czechoslovakia. Since the year 1922 three prominent cactus societies have and are still existing in the young republic. Cacti became very popular with the Bohemians, as was the case in many other parts of Europe, and so these societies were organized that the people might better understand the cultural methods of this fascinating group of desert plants. Innumerable smaller clubs also sprang up in the villages and these then affiliated themselves to the larger societies. As a result, each of the three prominent clubs published a separate cactus journal and these functioned until recent times, when the owners of the publications got together and decided to suspend two of the magazines. Thus, "Kaktusar" (literally Cactus Journal) remained and at the same time because the official organ of all cactus clubs in the Republic. The journal is issued as a monthly (except July and December) and at present is in its sixth year. Mr. Bedrick (Frederic) Weingart is its able editor. The "Kaktusar" is owned and published by ASTROPHYTUM, a name adopted by the Society of Cactus Culturists of Brno. (Brno is the governmental seat of the province of Moravia in the Republic of Czechoslovakia). The contents of the Journal are of great value to cactus culturists, as many world renowned specialists are its chief contributors. The periodical boasts about 1000 subscribers, and not alone is it sent to the whole of Europe, but also to America, Australia and even to Japan. Yet among Americans of Slav extraction, it is but little known. Thus an appeal was made to the writer by the editor of "Kaktusar" to make known this Czechoslovak cactus journal among our American cactus lovers. The writer himself spent the first six years of his life in that part of Austria, which after the World War became the independent Republic of Czechoslovakia. Twenty-one years have elapsed since emigrating to America and in those long years, the native tongue was almost forgotten. Hearing of the existence of a Bohemian cactus society through our own American Cactus Journal, the

writer immediately began corresponding with the editor of Kaktusar and therefore much of the information in this article was thus obtained. From time to time the writer hopes to bring news from this far-off country, and of the activities of the Czechoslovak cactus clubs. Perhaps photographs of singular cactus collections and of cactus exhibits in the Bohemian Republic may also be secured and these then will appear in this Journal.

The number of cactus enthusiasts in the Czechoslovak Republic is very high. Then, too, there exists a relatively great number of collectors, who have large greenhouses, in which they cultivate singular collections. To the cactus collections in the young republic belongs not only the distinction of having a great many varieties, but also large and showy specimens. It is said that in some of the collections it is possible to find many old originals and even many type plants from the times of that great botanist-collector, Benedict Roezl ,which in Germany would be hard to locate. The study of cacti in the Bohemian Republic dates back to the 19th century. Next to the gardeners, who were in the employ of the nobility and the rich, came A. V. Fric, who was one of the first Europeans to seriously collect and study cacti in their native habitats, both in North and South America. Mr. Fric has made several trips to our coasts, always finding many new plants. With Dr. Werdermann and Curt Backeberg, he forms a triumirate of the foremost cactus authorities in Europe today.

Although in other lands one will find large collections, especially among professional gardeners, in Czechoslovakia there is a large group of cactus lovers and a certain number of amateurs, who have small and very often outstanding collections—who are specialists in certain groups and genera, yet very little is known of them, because they work silently and never let anyone know of their achievements. Of course many of these dilettanti do not sell nor trade their plants, so they likewise don't make themselves heard, for fear perhaps, some one would find out their secrets of success in maintaining such fine collections. And this often is the case of many successful culturists in America.

To the Czechoslovaks of America and to all others who can read the Bohemian language, the Kaktusar is highly recommended.

Neomammillaria hoffmanniana Tiegel

A new species of *Neomammillaria* under this name was described by E. Tiegel of Duisburg, Germany, in the "Annals of Biologic Institute of the University of Mexico," Vol. V, No. 3, 1934.

Plants were sent to Germany by F. Schmoll and there flowered. A milky substance in the plant and tubercles is the chief distinguishing feature of the species. It is related to *Neomammillaria polythele,* differing from it in having central spines chalky white, and with a corona of short, horizontal, radial spines around the areole.

The plants are generally simple, spherical. Flowers are light rose with a darker midrib. It comes from the State of Queretaro, Mexico. The name is in honor of Professor Carlos C. Hoffman of the Biologic Institute of the University of Mexico, who has studied the native cactus and has a fine collection of these plants in his garden.

E. M. BAXTER.

PRESIDENT'S COLUMN

In closing this seventh year of our Society's history it is desirable to list some of the year's accomplishments and to give credit to the ones who have worked to fulfill those accomplishments. The fact that you have renominated without opposition all but one of last year's officers speaks for your approval of their work.

Early in the year two committees for service to members and affiliated Societies were formed and have functioned during the year. Dr. R. W. Poindexter, as chairman of an identification committee, has maintained a steady service in naming hundreds of plants, photographs, and descriptions sent in by members. William Surganty, Corresponding Secretary and representative of Affiliated Societies on the Executive Board, has conducted a regular correspondence with affiliated groups; his service has developed a number of prepared talks with illustrations that may be used in local Society meetings. Show plans, library material, and consultation on innumerable subjects has been his contribution. A recent series of articles by members Wright Pierce and W. Taylor Marshall has been added to the available material.

Enthusiastic support by all members has built our membership to the greatest number ever recorded. This must continue, however, and your further efforts toward securing new members are requested.

Secretary Clum has carried a heavy responsibility all year and has done many things, not required of his office, for the Society's good. His assistance to Dr. Poindexter, show manager, put over the finest exhibit ever staged for our Seventh Annual National Cactus and Succulent Show. These two, with Mr. Surganty as the third member, took over the Show Committee job when it was dropped by the original committee, and by weeks of untiring work successfully managed our Show.

Too much cannot be said about the work of Scott Haselton, JOURNAL Editor. Always our prime contribution to our membership, the JOURNAL has been built to give the greatest use to all. The JOURNAL, book service to members, and publishing of new books is occupying the full time of Mr. Haselton. His underwriting of all Society expenses has brought us through

some periods of stringency that periled our existence, until today we are stronger than ever before in our seven years.

Our appreciation must be given to those who have assisted in the Society's pilgrimages during the year. San Diego members, the Huntington Botanic Gardens, William Maechtlen, our Long Beach affiliate, and Mrs. Bixby, have been our hosts at various events.

In writing this message my mind is so filled with names of those to whom thanks are due that it seems to be an endless task to record them all: all of our Officers and Directors, including past Presidents; leaders of our affiliated Societies; Journal contributors; unselfish commercial dealers; innumerable members who are strengthening the Society by word and action; botanic gardens and libraries; those specialists who are conducting research experiments for the sake of knowledge; and every one of you who retains his interest in this grand hobby of ours.

The proposed incorporation of the Society will materially strengthen our position. It must be submitted to you in the form of amendments to the Constitution. Your approval will permit the Society to go forward in fields not previously touched because of the liabilities to be incurred in an unincorporated body's actions.

Perhaps our finest results this year have been in the field of closer relations with Cactus and Succulent groups not affiliated with the Society. Cooperation rather than competition has been our effort, to the extent that together we have progressed with benefit to all.

May I close with a personal appreciation to members Poindexter, Clum, Haselton, and Surganty for their year's hard work.

EDGAR M. BAXTER, *President.*

CACTUS AND SUCCULENT SOCIETY OF AUSTRALIA

President E. E. Prescott reports that their Society is making progress and that the membership is very enthusiastic. Collections in Australia rank with the best as is shown by the late Dr. Robert Pulliene's well known work.

Those who were fortunate to meet Mrs. Gatehouse on her recent visit to the United States will be glad to learn that her Californian cacti are thriving and are ready to flower. Between golf championships, we understand that cacti claim her attention.

ANOTHER COMPLAINT

Edwin Strong of La Habra complains that when he looks through the index of the CACTUS AND SUCCULENT JOURNAL he sees so many things to reread that he never reaches the subject that he started to look up! Mr. Strong is circulating the Journal in Iowa and he has high hopes of converting many more in that state to the interesting hobby of collecting cacti.

QUOTED FROM "PRICKLY PARAGRAPHS"

These paragraphs are presented with the compliments of the Cactus and Succulent Society of Oklahoma with the hope that some item may be of help to you. Studies of these plants are carried on at the bi-monthly meetings in the Oklahoma City greenhouse. And one interested will be welcome.

Cacti find in our living rooms the warm, dry air of the desert climate. These conditions, unsuitable for other plants, are right for cacti.

The best time for transplanting is in the Spring when Cacti show new growth. Newly transplanted cacti are not watered immediately. Moisture might easily cause decay in a broken or damaged root.

Cacti placed in the window for the winter should keep the same side toward the light at all times to assure its blooming.

If one likes large succulent plants with few thorns, give them lots of water if pots are well drained; but if one likes small plants, lots of thorns and blossoms, water sparingly.

Never shock cacti with cold water. Never water from top but give them a good soaking by placing pots in water. Do not water on dark, cloudy days.

Young seedlings must be kept together in pots as they grow better in company until about the second year.

Seedling pot should be deeply watered between rows with medicine dropper rather than from bottom.

Christmas Cactus (Zygocactus) is the most popular cactus grown in the home. Its period of blooming extends from November to March. The secret of success with this plant is cow manure.

When writers give helpful hints about plants, notice where they live and use a little common sense. California ideas might not apply to Oklahoma.

Water dripping on a plant for even a short time may induce infection.

Ants must be kept away in order that you be free of aphis and mealy bugs. These must also have their doses of controlling poison.

Nicotine in spray will kill life-sucking aphis, also red spider; whale oil soap suds for scale and semasan for rot.

Spraying the windows where cacti are kept with any good fly spray will keep out gnats and their larva, thread or pin worms. The spray does not injure cacti.

Watch for slugs in outdoor beds. They are very fond of cactus juice and will cause the plant to shrivel and dry up.

The *Carnegiea gigantea* has as many as two thousand stamens in a single flower.

There are thirty-five hardy sedums that are fine for rock gardens.

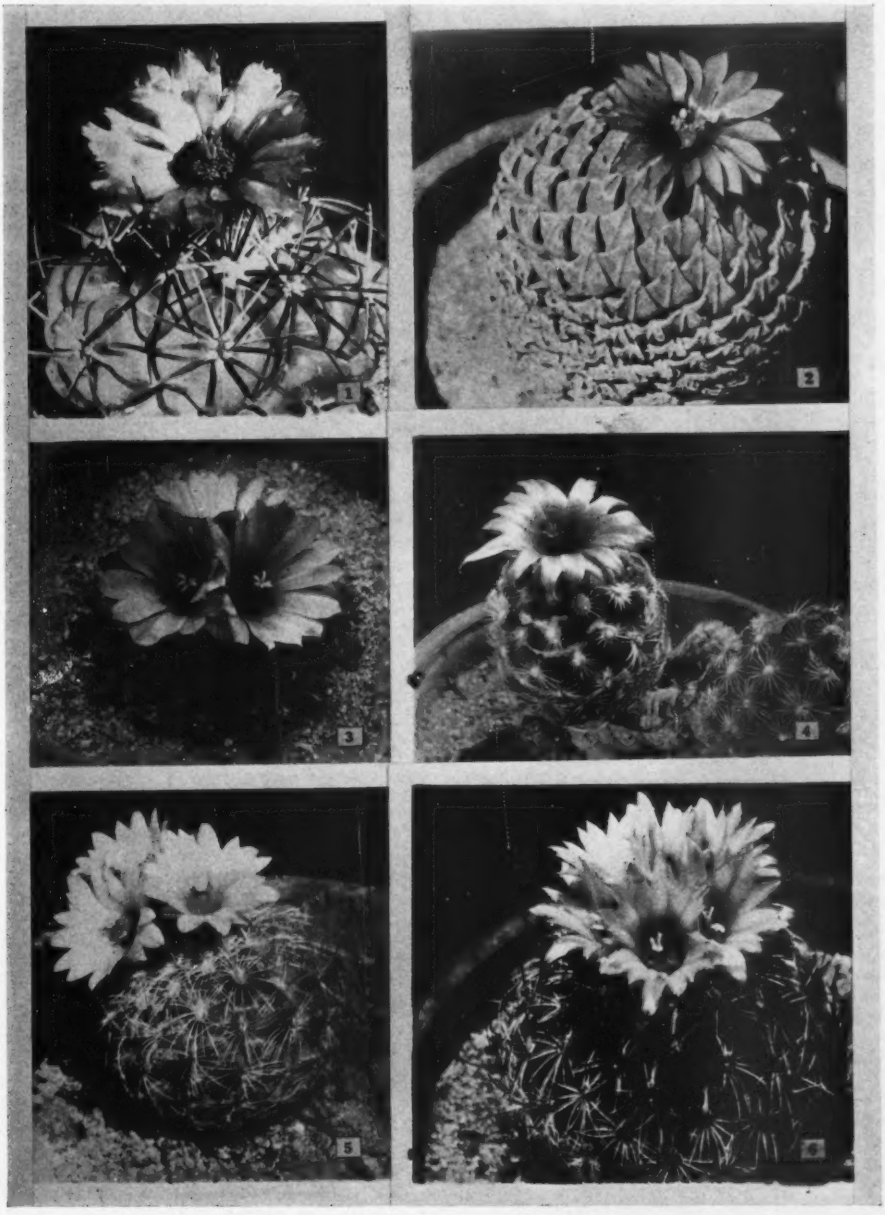
The tunas, or fruit of the prickly pear, resembles the fig in flavor. There is as much difference in the fruit of different varieties as there are of apples.

Texas is the cactus empire of the United States. There are 96 species and 23 native genera occurring there.

A good soil suitable for nearly all species of cacti is obtained by mixing two-thirds rotted leaf mould, one-third coarse river sand, small quantities of powdered charcoal and possibly some carbonate of lime.

Peat mass is a valuable ingredient in the soil mixture for succulents and should not be overlooked.

Cactus thorns are no more poisonous to the flesh than a splinter of wood.



Imported plants in the collection of Harlan Whitmore, San Fernando, Calif. We are promised an article on how he grows such fine specimen plants; in fact, his collection cannot be surpassed for the amount of space he can devote to his plants. 1. *Coryphantha valida* (Purpus), *poselgeriana* (Br. and R.); 2. *Ariocarpus strobiliformis;* 3. *Ariocarpus kotschoubeyanus;* 4. *Mammillaria grandiflora* Otto, *Neolloydia conoides* Br. and R., *Coryphantha grandiflora* Berger; 5. *Thelocactus knuthcanus;* 6. *Thelocactus sauerii, Echinocactus sauerii* Bod.

The Elusive Echinocereus Perbellus

To cactus collectors in Texas and Oklahoma, the name, *Echinocereus perbellus,* is becoming a joke. Any claim to its identification is received with derision. Eminent authorities consider it merely a form of *E. reichenbachii,*—but which one? There are so many variations from the type form with its short, pectinate, slightly recurved, white spines which completely cover the stem. The well-known kind with chestnut-colored spines is an example.

A common variety with shorter, finer spines, not long enough to interlock, shows bare strips of green stem between rows. Sometimes the spines are white with purple tips; and the same plant may have bands of brown spines. One plant had bands where half the spines on an areola were white and the other half brown.

A particularly stout variation has delicately shaded spines twice as long as the type, the aeolae widely spaced so that the stem is far from covered.

From this it can be seen that the distinction made in the Key in The Cactaceae,

"Spines variegated..... *E. perbellus.*
Spines of one color.
E. reichenbachii.
E. baileyi."

does not hold, if we are to understand variegated to mean that each spine is parti-colored—"brown to reddish or nearly white below."

E. baileyi also is inclined to variegated spines, pale mauve with purplish-brown tips, or rusty brown and white with darker tips. Older plants are sometimes banded.

As for "most beautiful," all the species and variations in this group of Echinocereus have beautiful flowers, none more so than *E. reichenbachii* when it chooses to do its best. But if both plant and flower are considered, the new *E. longispinus* would surely win the beauty prize. Visualize an elegant little cactus covered with a graceful swirl of long, slender spines, delicate pinkish-mauve in color. Top it with a magnificent rose magenta flower shaded to white toward the center of yellow stamens, the petals spread flat to form a silken rosette, and you have some idea of its amazing beauty.

In the meanwhile, I have crossed *E. perbellus* from my list of Oklahoma cacti until I find some one who really knows what it is.

MARION SHERWOOD LAHMAN

FROM FLORIDA

Dr. Poindexter quotes from a recent letter: "I wondered if the reason that the cacti grown here in Florida seemed to you to be 'long drawn out' might not be due to the twelve month growing season. On the lower east coast we do not have to take the question of frost into consideration, a fact which makes a Cereus which will not stand frost, a practical grafting stock in this locality. The long drawn outness might also be due to the shade or partial shade in which so many of our cacti are planted. Although we do not have to contend with cold, we do have to have wind breaks, and tall ones, to break the force of the salt easterly winds. Yesterday I mailed you a cutting of the cactus we were discussing. We have had one hurricane warning after another for the past two months; fortunately all were deflected. If we had been struck it would not have been necessary to make a cutting. It would simply have been a question of picking up the pieces. Which goes to show that everywhere nature provides the necessary obstacles to whet the ingenuity of the cactus fan and prevent him from becoming too lazy in the pursuit of his hobby."

The book "Stapelieae" by White and Sloane has spoiled me I am afraid. Aren't there other members of the Society who might be persuaded to follow in their footsteps in treating of other groups of succulents? The treatment is exhaustive and yet interesting and the book is so beautifully printed and bound that it is a pleasure to use it. RUTH SAGE, *Florida.*

THE GARDEN DICTIONARY

"The Garden Dictionary" which Houghton Mifflin Company will issue next Spring, is rapidly nearing completion. Sixty-five of the leading horticulturists and landscape architects have contributed many articles under the general editorship of Norman Taylor who is also editor for botany and ornamental horticulture of Webster's New International Dictionary, and formerly a curator at the Brooklyn Botanic Garden.

Some of its outstanding features are a garden calendar of work which also shows when 1000 leading cultivated flowers are in bloom; a colored map of the hardiness zones of the country which shows at a glance the climatic suitability of all woody plants; detailed horticultural maps of all the states to accompany the account of the garden possibilities of each state which has been contributed by the Experiment Stations.

"The Garden Dictionary" will be published in one volume of about 900 pages, with 20 full page colored plates and hundreds of text figures.

Missouri Botanical Garden Bulletin, No. 7, Sept. 1935, contains one of the most valuable contributions for the grower of succulents. Ladislaus Cutak, a member of the Cactus and Succulent Society of America, wrote this article called "Culture of Succulents in the Midwest." Accompanying the growing of succulents from seed there is a valuable list of the time required for germination; he proceeds to other methods of propagation including grafting which is accompanied by excellent photographs and drawings. Culture and "Glass-enclosed Deserts" concludes this bulletin. Mr. Cutak has made a most valuable report in answer to the oft repeated question: "How can I grow cacti indoors?"

EDITOR'S NOTE: We note that the Bulletin of the Missouri Botanical Garden states that the subscription price is $1 per year and single copies are 10c. This is highly recommended for the student and grower.

GIVE CACTUS BOOKS FOR CHRISTMAS

An appropriate Cactus Christmas card will be sent with each book order or Society Membership ordered as a gift.

CACTUS—By A. J. van Laren. A companion volume to "Succulents" with similar imported color prints of 140 different cacti in color. Bound in cloth. Numbered edition of 1000 copies, $5.00. $10.00 per set. "Succulents" sold separately for $7.50.

THE CACTUS AND ITS HOME—By Forrest Shreve. Written by a member of the society who is in charge of The Desert Laboratory of the Carnegie Institution. Describes what a cactus is, how it is constructed, names, tribes, families, cultivation and distribution. Based on scientific investigation, a great many questions are answered. 45 interesting illustrations, $2.50.

THE STAPELIEAE—By Alain White and Boyd L. Sloane. Only a few copies left. The most complete monograph on Stapelias. 224 pages with 250 illustrations, $3.00.

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ARIZONA CACTI—By William Stockwell and Lucreta Breazeale. One of the most valuable books that has been published because of its scientific value in recording the cacti of Arizona and its illustrated glossary of terms used in describing cacti. Every student will appreciate the helpful information it contains, 45 cents.

TEXAS CACTI—By Ellen Schulz and Robert Runyan. 180 pages with complete illustrations of the native cacti of Texas. One of the most complete and valuable books on cacti. A few more copies have been secured, but the supply is nearly exhausted. Order now while the price is $3.00.

THE CACTUS BOOK
by
A. D. Houghton

From this book you will learn the secrets of successful watering, how to grow Cacti from seeds, how to propagate the rare species by grafting, how to hybridize, how to grow indoors in pots, and on window sills, how to purchase and trade to get new sorts and what kinds to grow for different effects. Also introduces you to more than 1,000 different kinds of Cacti with information for selecting the types you need for every purpose and location.
Price $2.25 Postpaid

Cactus & Succulent Society of America

Mail Address: THE CACTUS JOURNAL, 6162 North Figueroa St., Los Angeles, Calif.

I would like to add that I am enjoying my subscription to your magazine immensely, and feel that I have learned a great deal more about cacti since reading it, than I ever expected to know. It is a most interesting subject. (MRS. J. R.) *Chicago, Ill.*

MESEMBRIANTHMEN UND PORTULACACEEN—By Alwin Berger ..... $ 3.00
In German. 328 pages and 67 illustrations.

STAPELIEEN UND KLEINIEN—
By Alwin Berger ..... $ 3.00
In German. 434 pages and 79 illustrations.

THE CACTACEAE, Vol. 1, as reprinted in one color in the Journal. An exact reprint of Carnegie Institute's contribution to cactus literature. Bound in heavy buckram $10.00

PHOTOGRAPH CONTEST

This plan was formulated by Howard E. Gates in connection with a catalog for his gardens in Anaheim, California. The JOURNAL offer the following contest:

Only clear sharply focused prints can be used. No photos will be returned. All photos will be acknowledged in the Journal. Prize winners will be announced 12 months from date. Any photo may be published in the Journal by giving proper credit. In each classification the first prize will be a copy of "Cactus" by van Laren.

CACTUS AND THE OTHER SUCCULENTS

1. Window Gardens and arrangements.
2. Year-around plantings(as in California and Texas).
3. Summer gardens (for the East and Middle West where plants are kept indoors in the winter).
4. From foreign lands.
5. Best picture of a Cactus flower.
6. Best picture of a Succulent flower.
7. Novelties in plants, pots, arrangements.
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Address: Cactus Journal, 6162 N. Figueroa St., Los Angeles, Calif.

1935 EPIPHYLLUM SEEDS FOR SALE

Order now before they are gone. Only 200 of each kind to a customer. Wish to encourage collectors. Will not substitute if gone, therefore quote alternate.

At 20c per 100—Hermosus, Strictum (Trelease), Stenopetalum (C. Conzattii). At 35c per 100—Hermosissimus, Crenatus Eichlam, Crenatus (Dr. Rose)*, Koening Humbert, Large Rose (favorite). At 40c per 100—Colonel Kuehnrich*, Hofrat Bouche*' Herman Roestel*, Crebatus (curved leaf), Roseus superbus, Empereur, Dark Rose (bell shaped*). At 50c per 100—Ernst Seyderhelm* (giant), Copper Color (giant), Epinicereus Friend Wegener*, Hans Rehm* (odd leaf). NEW CREATIONS, pollin, with Selenicerei: At 50c per 100—Hermosus, hermosissimus, Largest Rose (Maechtlen). At 75c per 100—Epinic. Friend Wegener, Emperatrice Eugenie Phyllo with Phyllo at 50c per 100—Crenatus (curved) w/ Empereur, Souvenir Otto Schmidt w/Yellow striped, Ernst Seyderhelm w/ Hermosissimus (only 100 left). Those marked * none on the market. Please do not write for wholesale price on Phyllos as I am not in business, but would advise raising phyllos from seeds. Demand for plants from all over the world is way over the supply and import prohibitive due to exchange rate. Like to sell about 50 cuts (1 in. thick) of 12 to 15 in. of Harr. bonplandii at 35c per cut. (f.o.b. Los Angeles).

H. M. WEGENER
Private collection of Phyllocactus
1190 Leighton Ave., Los Angeles, Calif.

EDITOR'S NOTE

Only legitimate dealers are asked to advertise in the JOURNAL. If two or more proven complaints are received by the Society, no further advertising will be accepted from that dealer until all difficulties have been adjusted.